



Original Article

Relation of Antinuclear antibody in polymorphic Light Eruption

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Abstract

Background: Polymorphic light eruption (PLE) is a very common photosensitive disorder worldwide where elevated titers of antinuclear antibodies (ANA) were found in PLE patients.

Objective: In this study our main aim is to detect whether ANA positivity is associated with an increased risk for development of PLE.

Methodology: This cross sectional study was done at US Bangla Medical College and Hospital and different private chamber in Dhaka district from two years January 2018–July 2019 among 100 patients. Consent was taken from all the patients before the inclusion into the study. Our study consisted of 50 patients and 50 healthy age and gender matched controls who attended the outpatient Department of Dermatology, STD and Leprosy an associated hospital of Dhaka. Automatic immunoassay analyzer (ELISA test) was done to measure ANA index.

Result: During the experiment most of the patients belongs to 31-40 years age group and male percentage (80%) was higher than female. Also, in case group only 7% shows ANA positivity whereas in control group 2% patients shows ANA positivity.

Conclusion: from our result, we can conclude that there was a very little difference in the ANA positivity rate between cases and controls and also of the levels of ANA with the severity of disease. Long-term follow-up of the patients is being undertaken to describe more fully the disease course and prognosis.

Keyword: Polymorphic light eruption (PLE), antinuclear antibodies (ANA), dermatology.

Introduction

PLE is an idiopathic photodermatosis categorized by a polymorphic eruption ranging from papulo-vesicular lesions to large plaques, situated mainly in a photo exposed distribution. It is an acquired

syndrome and is the most common idiopathic photodermatosis.

It is categorized by recurrent abnormal delayed reaction to sunlight ranging from erythematous papules, papulovesicles and plaques to erythema

multiform like lesions on light exposed areas. Within any one patient only one clinical form is consistently manifested.

The situation is seen most commonly in parts of the world with four seasons and it is most commonly activated by springtime sun exposure. The rash happens on the sun exposed parts of the body, typically 1-4 days after exposure.

The sensitivity of the skin and sensitivity of the rash progressively lessens as the spring changes into summer and skin becomes adjusted to light. PLE distresses men and women, adults and children similarly though the problem typically begins between the age of 20-35 years.

Previous reports have shown elevated levels of ANA in patients with PLE. The occurrence of autoimmune diseases in PLE has been found to be as high as 15% in some report and even higher (22%) if hypothyroidism and non-toxic goitre were measured as the autoimmune procedures.



Figure-1a and 1b: shows plaque type PLE lesions on the nape of neck and erythema multiforme-like lesions and violaceous papules over the dorsum of hands in PLE patients.

Antinuclear antibodies (ANA) as well as anti-SS-A/Ro anti-bodies have been noticed in patients with PLE in varying incidences but most follow-up studies so far have failed to show a progression of ANA-positive patients with PLE into LE.

Though, there are also reports on the incidence of sub acute cutaneous LE (SCLE) or systemic LE (SLE) in patients with PLE with high titres of ANA and/or anti-SS-A/Ro antibodies and severe sun sensitivity. ^{[1][2][3][4][5]}

In this study our main objective is to detect whether ANA positivity is associated with an increased risk for development of PLE.

Objective

General Objective

- To identify ANA positivity is associated with an increased risk for development of PLE.

Specific Objective

- To identify ANA presence in patients

Methodology

Study Type

- This was a cross sectional study.

Study Period and Place

- This study was conducted at Us-Bangla Medical College and Hospital and different private chamber in Dhaka district from two years January 2018 – July 2019 among 100 patients.

Method

Consent was taken from all the patients before the inclusion into the study. Our study consisted of 50 patients and 50 healthy age and gender matched controls who attended the outpatient Department of Dermatology, Us-Bangla Medical College and Hospital and different private chamber in Dhaka district. Automatic immunoassay analyzer (ELISA test) was done to measure ANA index.

Assessment of the patients' family and personal history included questions about photosensitivity, allergy, auto-immune diseases, intake of drugs, skin phototype and detailed analysis of the individual PLE features In accordance with previous investigations on patients with PLE, ANA positivity was defined as an ANA titre of >0.0125. All ANA-positive patients were asked to attend for follow-up examination which

included a complete medical history, skin examination and determination of a panel of laboratory parameters. The patients having classical clinical features of PLE and without other criteria suitable to the diagnosis of lupus erythematosus were regarded as having PLE and were included in the study. Particular attention was paid to any symptoms of collagen vascular syndromes in particular lupus erythematosus.

Exclusion Criteria

- The patients having clinical manifestation of lupus erythematosus or other autoimmune diseases were excluded from the study.

Data Collection and Analysis

- Data will be collection in predesigned data collection sheet using various parameters. Interviews conducted using direct questionnaire and all information will be noted in pre from data collection sheet. Data were compiled and appropriate statistical package for social science (SPSS).

Result

In table-1 shows age distribution of the patients where most of the patients belongs to 31-40 years age group. The following table is given below in detail:

Age group	%
21-30 years age group	12%
31-40 years age group	78%
41-50 years age group	6.4%
51-60 years age group	3.6%
Total	100%

In figure-2 shows age tribulation of the patients where 82% were female and 18% were male. The following figure is given below in detail:

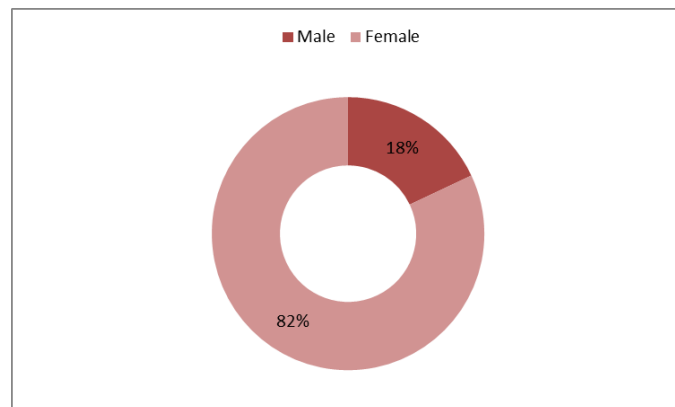


Figure-2: Age tribulation of the patients.

In table-3 shows epidemiological characteristics of the patients where that duration PLE 6-7 years in 61% patients than other duration and 42% patients had family history. The following table is given below in detail:

Table-3: Epidemiological characteristics of the patients:

variable	%
Duration of PLE:	
2-3 years	13%
4-5 years	21%
6-7 years	61%
8-9 years	5%
Clinical presentation:	
Micropapular plaque	43%
erythema multiforme	36%
eczematous	12.5%
8.5%	
Family History:	
Yes	42%
No	58%

In figure-3 shows causes of PLE where UV exposure was very much common in patients. The following figure is given below in detail:

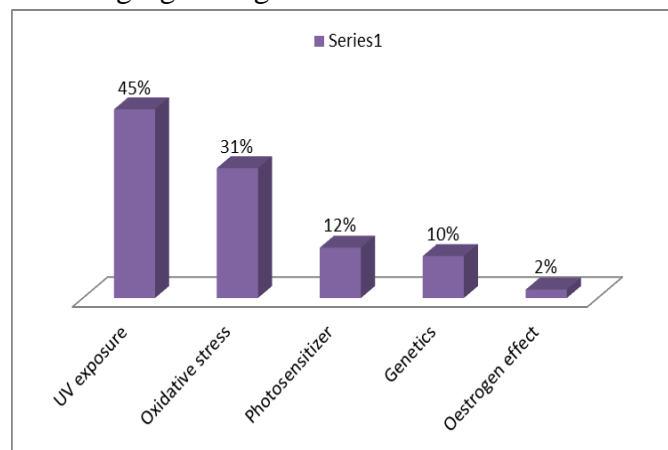


Figure-3: Causes of PLE

In table-4 shows distribution of patients according to ANA presence where in case group only 7% shows ANA positivity whereas in control group 2% patients shows ANA positivity. The following table is given below in detail:

Table-4: Distribution of patients according to ANA presence

Variable	%
Case:	
ANA positive	7%
ANA negative	93%
Control:	
ANA positive	2%
ANA negative	98%

In figure-5 shows antinuclear antibody (ANA) titer distribution at the first examination in patients with polymorphic light eruption (PLE) where 88.29% had negative ANA titer. The following figure is given below in detail:

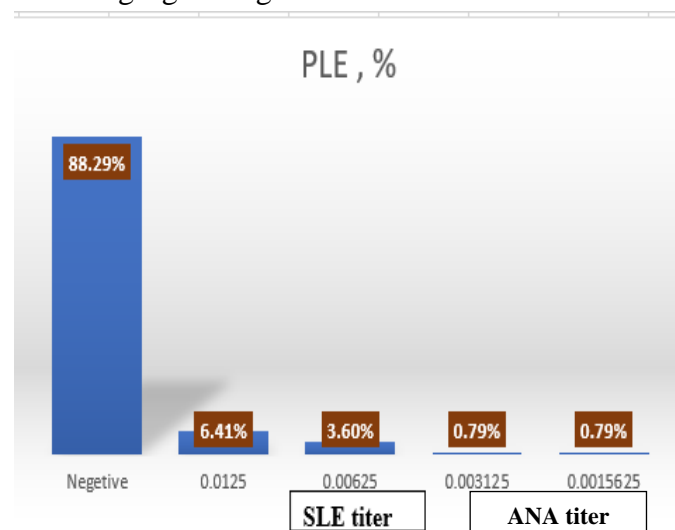


Figure-5: Antinuclear antibody (ANA) titer distribution at the first examination in patients with polymorphic light eruption (PLE).

Discussion

PLE is an idiopathic photodermatosis characterized by a polymorphic eruption extending from papulo-vesicular lesions to large plaques, placed predominantly in a photoexposed distribution. It is an evolved disease and is the most common idiopathic photodermatosis. It is characterized by recurrent abnormal delayed reaction to sunlight ranging from erythematous papules, papulovesicles and plaques to erythema multiform like lesions on light exposed areas.

Within any one patient only one clinical form is consistently manifested^[3]

In our study we found that most of the patients belong to 31-40 years age group and male percentage (80%) was higher than female. Which is supported by many studies^{[4][5]}

In one study done among 427 patients where the median age of the patients at the first presentation was 34 years. Which very much similar to our result. Also they found the median disease duration 7.5 years.^[5] In our study we noticed that duration PLE 6-7 years in 61% patients than other duration, which is quite similar to other result.

The severity was clinically assessed on the basis of extent of involvement of photo exposed areas, time taken to resolution, intensity of pruritus and incidence of recurrences. An assessment of the patients present history, and personal history included questions about photosensitivity, allergy, autoimmune diseases, drug intake and a detailed analysis of the individual PLE lesions :morphology, symptoms, latency period between sun exposure and beginning of skin rash, duration of the disease and resolution with or without scarring.^{[6][7]}

During the study, 45% patients suffered PLE for UV exposure and most of them had micropapular type of lesion. Also, in case group only 7% shows ANA positivity whereas in control group 2% patients shows ANA positivity. This is supported by one study, where they found positive ANA levels were in 5.55% of patients with PLE.^[4]

Conclusion

From our result, we can conclude that there was a very little difference in the ANA positivity rate between cases and controls and also of the levels of ANA with the severity of disease. Long-term follow-up of the patients is being undertaken to describe more fully the disease course and prognosis.

Reference

1. Ros A, Wennersten G. Current aspects of polymorphous light eruptions in Sweden. *Photodermatol* 1987; 3: 298-302.
2. Moncada F, Gonzales-Amara R, Baranda ML et al. Immunopathology of polymorphous light eruption. T lymphocytes in blood and skin. / *Am Acad Dermatol* 1984; 10: 970-3.
3. Norris PC, Morris J, Chu AC, Hawk JLM. Polymorphic light eruption: an immunopathological study of evolving lesions. *Br J Dermatol* 1987; 118: 287.
4. Hassan I, Sajad P, Majid S, Bashir H. Antinuclear antibody levels in Polymorphic Light Eruption and their relation to the severity of disease. *Our Dermatology Online*. 2012 Oct 1;3(4):318.
5. Tzaneva S, Volc-Platzer B, Kittler H, Hönigsmann H, Tanew A. Antinuclear antibodies in patients with polymorphic light eruption: a long-term follow-up study. *British Journal of Dermatology*. 2008 May;158(5):1050-4.
6. Norris PG, Hawk JLM: The acute idiopathic photodermatosis. *Semin Dermatol*. 1990;9:32-8.
7. Sinha AA, Lopez MT, Mcdevitt HD: Autoimmune diseases: The failure of self tolerance. *Science*. 1990;248:1380-7.